

EML 4730L – MECHANICAL ENGINEERING LABORATORY
Common Course Syllabus

Catalog Data: 3 Credits, Experimental work related to heat transfer, fluid mechanics, mechanical systems, materials and solid mechanics.

Course Objectives: This course is designed to have students perform laboratory experiments in various areas of mechanical engineering to reinforce concepts presented in the Department's core courses. Students will work with pre-arranged experiments and new experimental setups they design in the class. They will collect experimental results and analyze and interpret the data. In addition to discussion on the experiments, class lectures will cover topics such as: Design of experiments, Statistics, Filtering and Errors analysis.

Prerequisites:

1. Experimental Methodology – EML 3523C
2. Computer Applications 1 – EGN 2213

Typical experiments will include:

- Beam deflection
- Compression of 3D printed structures
- Friction
- Heat transfer – conduction and convection
- DC motor characteristics
- Vibrations
- Heat exchanger
- Pumps in parallel and serial
- Pipe flow measurements
- Drag measurements

Course Outcomes: (numbers in parentheses indicate correlation of the outcome with the appropriate ABET program outcomes 1-7)

1. Students will be able to properly compose a technical report. (3)
2. Students will be able to conduct experiments in the areas of the Mechanical Engineering curriculum and analyze and report the results appropriately. (6)

Course Schedule:

2 hours of lecture and 2 hours of laboratory each week.
Formal student reports are required.

Updated 10/24